CLAIMS

1 - A method for depositing at least one functional film (5) on at least a part of one face or of both faces of flat or curved substrates (2), characterized in that the substrates are led one by one into a film-coating station so as to be advanced therein along their plane or mean plane, a film applicator unit (4), comprising at least one axis which is perpendicular to the direction of advancement and parallel to the plane of advancement and on which there is mounted at least one reel (8) of film (5), being disposed in said film-coating station, and in that, in this station, the leader (10) of the film (5) of each of the reels (8) is brought to be applied to and held against one face of the substrate (2) at a chosen location, the unwinding of the reel or reels (8) of film is triggered with a view to the film (5) being applied in strip(s) to the advancing substrate (2), then the film or films (5) is/are cut at a chosen moment and the new film leader (10) is held so that it is ready to be applied at the chosen location on the same substrate, or on a following substrate, the band width of each of the reels and their location on the axes being chosen as a function of the regions of the substrates which are to be covered by the films.

2 - The method as claimed in claim 1, characterized in that an applicator unit (4) is used comprising an axis on which there is mounted at least one reel (8) of film (5), whereby on one face of the substrate (2), in the direction of advancement of the substrate (2), as many parallel bands or strips can be applied as there are reels (8), the beginning and the end of each band being precisely positioned on said substrate, said bands being mutually spaced apart and the application of the bands being able to be halted

and resumed on one and the same substrate (2) in the course of its advancement.

3 - The method as claimed in claim 1, characterized in that an applicator unit (4) is used comprising at least two parallel axes, each axis bearing at least one reel (8), at least one reel (8) borne by an axis being staggered relative to at least one reel (8) borne by the neighboring axis, whereby on one face of the substrate, in the direction of advancement of the substrate, as many parallel bands or strips can be applied as there are reels (8), the beginning and the end of each band being precisely positioned on said substrate (2), said bands being able to overlap according to the location of two neighboring reels on their two axes and the application of the bands being able to be halted and resumed on one and the same substrate in the course of its advancement.

4 - The method as claimed in one of claims 1 to 3, characterized in that the substrates (2) are fed into the film-coating station vertically or in a position slightly inclined relative to the vertical.

5 - The method as claimed in one of claims 1 to 3, characterized in that the substrates (2) are fed horizontally into the film-coating station.

6 - The method as claimed in one of claims 1 to 5, characterized in that a functional film is used which is peelable, bonded, partially bonded, bonded on pre-cut zones, or of the decal transfer type.

7 - The method as claimed in one of claims 1 to 6, characterized in that a functional film is used which is chosen from amongst protective films, decorative films, information-carrying films and mechanical reinforcement films.

8 - The method as claimed in one of claims 1 to 7, characterized in that the coating of glass sheets is realized, in particular of sheets of monolithic or laminated glass or glass for multiple glazings, having, on at least one face, a functional layer, such as a dirt-repellant layer, a shatterproof layer, a surfacing film, said glass sheets being flat or with rounded or curved faces, said sheets being intended to form panes or to be cut to obtain panes or being intended to form windshields or automobile windows.

9 - The method as claimed in claim 8, in which the coating is carried out on flat glass sheets intended to be cut to form panes, characterized in that the application of peelable protective film strips is carried out in the manner defined in claim 2 so that the uncoated zones are arranged in a grid pattern, each zone coated by a strip corresponding to the daylight of a pane, and the uncoated zones being intended to allow the direct cutting of the glass forming the margins of the panes intended to be introduced into the rabbets of the frames and to be hidden from view by glazing beads.

10 - The method as claimed in claim 8, in which the coating is performed of curved substrates, characterized in that a film is chosen, the extensibility properties of which allow it to be applied to all of the planned application regions and/or that the width of the reels and hence of the strips is regulated as a function of the radius of curvature, the width of the strips being all the less the smaller the radius of curvature.

11 - The method as claimed in one of claims 1 to 10, characterized in that it comprises the operations consisting in:

- defining for each of the substrates, as a function of its intended purpose and on at least one outer face of said substrate, the region or regions which

are due to receive a film and the region or regions which do not need to be coated by the film;
- feeding said substrates successively into the film-coating station and commanding, for each of them, the application of film in the regions intended to receive such a film; and
- gathering the substrates which are thus coated.

12 - The method as claimed in claim 11, characterized in that, by computerized calculation, an optimization of the positioning of the film on the different substrates of the succession of substrates is realized as a function of the dimension of the substrates and the relative position of the regions due to be coated and the regions not due to be coated.

13 - The method as claimed in claim 12, characterized in that the optimization is equally realized as a function of the fitment of the reels and the different reels which said fitment is capable of receiving.

14 - A film-coating machine for implementing the method as defined in one of claims 1 to 13, characterized in that it comprises:
- a supporting and successive transfer structure (1) for the sheets to be protected, along their plane or their mean plane;
- a film applicator unit (4) comprising at least one perpendicular axis in the planned direction of advancement of the substrates and parallel to the plane of advancement, an axis on which at least one reel (8) of film is capable of being mounted in such a way that the leader of the film (5) proceeds to apply itself to the face of the substrate (2) to be coated as this face is transferred, said unit (4) being capable of receiving for each substrate (2) in the course of transfer the necessary number of reels (8) and of a band width chosen to form on each

substrate (2) the planned coating in strips, said reels (8) likewise being at least partially adjustable in height so as to form on each substrate (2) the planned coating in strips;

- means for commanding, at any desired moment, the application of the leader (10) of the film (5) of a reel to the substrate; and
- means for cutting the band at any desired moment once application is finished, means being provided for holding the new leader formed after the cutting of the band so that it is ready to be re-applied.

15 - The machine as claimed in claim 14, characterized in that a film applicator unit (4) comprises one or two separate, mutually parallel axes, each axis bearing at least one reel.

16 - The machine as claimed in either of claims 14 or 15, characterized in that the reels are activable individually or by groups of reels.

17 - The machine as claimed in one of claims 14 to 16, characterized in that the film applicator unit is movable toward or away from the substrates to be coated, said applicator unit being able to be displaceable in translation in order to adjust to the dimensions of the substrate or of the make up height of the film.

18 - The machine as claimed in one of claims 14 to 17, characterized in that the reels (8) are mounted in such a way that their leader (10) proceeds to apply itself to the face of the substrate (2) to be coated after passing over an applicator roll (7).

19 - The machine as claimed in claim 18, characterized in that with each applicator roll (7) is combined a retractable suction nozzle (11) disposed downstream of said roll (7) on the side opposite the

substrate (2), such that the leader (10) is sucked against said nozzle (11) in order to be held ready to be applied to the substrate (2), the deactivation of said suction commanding the application to the substrate of the leader (10) of the film (5), especially by an adhesive face of said film or by dint of its electrostatic nature.

20 - The machine as claimed in one of claims 14 to 19, characterized in that the cutting means for the film (5) is constituted by a hot wire (12) which is retractable when not in use and is mounted on the side opposite the substrate (2).

21 - The machine as claimed in one of claims 14 to 20, characterized in that with each reel (8) is combined a roll (13) for applying the film (5) to the substrate (2) following the cutting of said film (5).

22 - The machine as claimed in one of claims 14 to 21, characterized in that each reel (8) forms part of a film-application module comprising a tension roll (9) for tensioning the film (5) unwound from the reel (8) prior to passing over the applicator roll (7), a device for loading a new reel of film and for automatically repositioning the film advantageously being incorporated in said module.

23 - The machine as claimed in one of claims 14 to 22, characterized in that at least one axis of the applicator unit (4) is capable of receiving various sets of reels (8) of various band widths.

24 - Sheets, especially sheets of monolithic glass, laminated, coated with functional layers, such as panes, sheets to be cut to form panes, windshields, additionally comprising on at least one of their faces a functional film applied in regions delimited along strips, which strips can have overlapping margins.

25 - Sheets as claimed in claim 24, characterized in that they have been obtained by the method as defined in one of claims 1 to 13.